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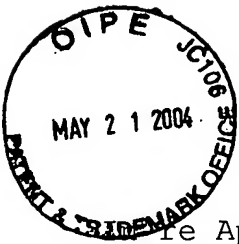
TRANSMITTAL FORM (to be used for all correspondence after initial filing)	Application Number	10/765,596
	Filing Date	January 27, 2004
	First Named Inventor	John D. Russell
	Art Unit	
	Examiner Name	
Total Number of Pages in This Submission	20+	Attorney Docket Number FGT 3G7DIV4(81096982)

ENCLOSURES (Check all that apply)		
<input type="checkbox"/> Fee Transmittal Form <input type="checkbox"/> Fee Attached <input type="checkbox"/> Amendment/Reply <input type="checkbox"/> After Final <input type="checkbox"/> Affidavits/declaration(s) <input type="checkbox"/> Extension of Time Request <input type="checkbox"/> Express Abandonment Request <input checked="" type="checkbox"/> Information Disclosure Statement <input type="checkbox"/> Certified Copy of Priority Document(s) <input type="checkbox"/> Response to Missing Parts/Incomplete Application <input type="checkbox"/> Response to Missing Parts under 37 CFR 1.52 or 1.53	<input type="checkbox"/> Drawing(s) <input type="checkbox"/> Licensing-related Papers <input type="checkbox"/> Petition <input type="checkbox"/> Petition to Convert to a Provisional Application <input type="checkbox"/> Power of Attorney, Revocation <input type="checkbox"/> Change of Correspondence Address <input type="checkbox"/> Terminal Disclaimer <input type="checkbox"/> Request for Refund <input type="checkbox"/> CD, Number of CD(s) _____	<input type="checkbox"/> After Allowance communication to Technology Center (TC) <input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences <input type="checkbox"/> Appeal Communication to TC (Appeal Notice, Brief, Reply Brief) <input type="checkbox"/> Proprietary Information <input type="checkbox"/> Status Letter <input checked="" type="checkbox"/> Other Enclosure(s) (please Identify below): PTO-1449 Form (6 pages) Copies of Foreign References
Remarks		
SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT		
Firm or Individual name	B. Anna McCoy, Registration No. 46,077 Kolisch Hartwell, P.C.	
Signature		
Date	May 19, 2004	

CERTIFICATE OF TRANSMISSION/MAILING			
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This collection of information is required by 37 CFR 1.5. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Re Application of:

Date: May 19, 2004

JOHN D. RUSSELL,
ALLAN J. KOTWICKI and
BRIAN D. RUTKOWSKI

Serial No. : 10/765,596
Filed : January 27, 2004
For : ENGINE METHOD

Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

S i r :

INFORMATION DISCLOSURE STATEMENT
UNDER 37 C.F.R. §§ 1.56, 1.97, and 1.98

Applicants are submitting this Information Disclosure Statement pursuant to 37 C.F.R. §§ 1.56, 1.97, and 1.98 to disclose to the U.S. Patent and Trademark Office the patents, publications, applications, and/or other references listed on the enclosed, completed PTO-1449 forms. The filing of this Information Disclosure Statement should not be construed as a representation that a search has been made or as an admission that the listed references are prior art for this application. Applicants respectfully request that the listed references be expressly considered during prosecution of the application, and that the references be made of record therein and appear among the "references cited" on any patents issuing therefrom.

CONTENT OF DISCLOSURE

This Information Disclosure Statement includes (1) 6 pages of PTO-1449 forms, and (2) a legible copy of each foreign and non-patent reference, if any, listed on the forms. However,

because this application was filed on or after July 1, 2003, no copies of U.S. patents or published U.S. patent applications are included.

FOREIGN-LANGUAGE REFERENCES

A concise explanation of the relevance of each listed reference not in the English language follows:

Japanese Patent No. 62101825: This patent purports to disclose to relieve a torque shock by correcting a charging quantity by means of a timing valve when air-fuel ratio has changed under a low load, in a device having an intake passage for high load in which a shutter valve is provided and an intake passage for low load in which said timing valve is provided.

An intake passage 10 is branched off, on the lower course side of a surge tank 13, to an intake passage 10a for high load and an intake passage 10b for low load which is formed for producing a swirl, and a shutter valve 17 is provided in the passage 10a while a timing valve 18 is provided in the passage 10b. When air-fuel ratio varies suddenly, e.g., from a rich zone to a lean zone under a low load, the opening/closing timing of the timing valve 18 is delayed in the direction of increasing a charging quantity by a controller 21, to increase an overlapping quantity. On the contrary, when shifting to the rich zone, the timing of the timing valve 18 is controlled to be advanced. Thereby, variation in torque can be reduced.

Japanese Patent No. 63032122: This patent purports to disclose to improve the acceleration responsiveness by installing a swirl generating valve on the downstream side of a fuel injection valve in a suction passage and controlling the swirl generation valve so that the flow passage area is reduced when the load is small and delaying the operation for increasing the flow passage area when the load sharply increases.

A shutter valve 10 as a variable swirl generating valve which turns around a shaft 18 is installed onto the downstream side of a fuel injection valve 12 on the upstream side of an intake port 14. The shutter valve 10 is connected with the diaphragm 27 of a vacuum motor 21 through a link 19, and opened and closed by the negative pressure of an intake manifold 9. A valve opening delaying means consisting of an orifice 24 and a check valve 25 is installed into a negative pressure pipe 23. Therefore, when a throttle valve is opened in engine acceleration, the reduction of the negative pressure is transmitted to a vacuum motor 21, and the fuel adhering onto the suction pipe is splashed off by throttling the intake stream in the initial stage of acceleration, and the lean conversion in acceleration is prevented, and the acceleration responsiveness can be improved.

Japanese Patent No. 1100316: This patent purports to disclose to prevent the deceleration shock of an engine, in a device provided with a swirl control valve for enlarging an intake-air turbulence at the time of closing of the valve interposed in an intake-air passage, by delaying a control for closing the swirl control valve for the predetermined period at the time of fully closing a throttle valve, and detecting deceleration.

An air cleaner 3, an air flow meter 4, and a throttle valve 5 are provided inside an intake-air passage 2 of an internal combustion engine in this order from all upper stream side, while a swirl control valve 8 is provided near an intake valve 7 of a branch part to each cylinder formed by an intake manifold 6. Intake air is throttled by closing the swirl control valve 8, while intake air turbulence is enlarged so as to improve the combustion performance. The swirl control valve 8 is controlled in such a way as closing at the time of detecting the fully

closed throttle valve, by a control unit 10. In the case of such a control, the control for closing the swirl control valve 8 delays for the predetermined period, at the time of detecting the fully closed throttle valve, and deceleration driving condition of the engine.

German Patent No. 3916605: This patent purports to disclose a device for the control of an air-fuel ratio for an internal combustion engine is disclosed, with an inlet control valve arranged downstream of a throttle valve and actuated independently of the throttle valve, which control valve is closed or opened in order to selectively regulate a swirl motion of air introduced into the engine according to a load condition of the engine, a quantity of fuel fed to the engine being calculated in the said device in accordance with a target air-fuel ratio on the basis of fundamental engine operating conditions including the engine load and speed, a feedback device being provided for controlling a value of the feedback correction variable, incorporated into the calculated fuel quantity, in accordance with a deviation of a fuel-air ratio detected by an air-fuel ratio sensor, when the engine is in a feedback condition, and a learning device being fitted for controlling a learning variable in accordance with the value of the feedback correction variable during the feedback condition, in order to adjust the calculated fuel quantity so as to reduce the effect of the feedback correction variable on the air-fuel ratio obtained.

Japanese Patent No. 2176115: This patent purports to disclose to generate a swirl and increase the flow speed of an air-fuel mixture by forming spiral side grooves guiding the air-fuel mixture from the upstream side intake manifolds of swirl control valves (SCV) to the immediate upstream of the intake valve of one intake port.

SCVs 13 are installed at inlet sections of intake ports 9a and 9b where an air-fuel mixture is fed from an intake manifold 15 in a two-intake valve type engine 1. Spiral side grooves 31 and 32 guiding the air-fuel mixture from the upstream side intake manifold 15 of the SCVs 13 to one intake port 9a are formed. Under a low load when the SCVs 13 are closed, a swirl is generated by drifts from the side grooves 31 and 32, the flow speed of the air-fuel mixture is increased, the mixing of the air-fuel mixture and combustion are improved, and the combustion improvement at the practical area of the engine 1 is attained. Under a medium load and a high load when the SCVs 13 are opened, effective combustion is obtained by the turbulence effect of the air-fuel mixture, and the output and fuel consumption can be improved.

Japanese Patent No. 3009021: This patent purports to disclose to improve the output torque by controlling a valve system of which valve lift quantity and the valve opening/closing time are variable and an opening/closing control valve provided in an intake passage so that the intake passage at the time of high speed has a large sectional area or short dimension against that of the time of low speed in relation to each other in response to the engine speed area.

An intake passage material 42 communicated with a throttle body 4 and having intake passages 45, 47 for low speed and high speed partitioned with a bulkhead 48 is provided in an intake device of an internal combustion engine in which a valve system switching mechanism 14 is provided, and a confluence chamber 49 is formed near the downstream end thereof, and while an opening/closing control valve 51 is provided near the upstream end of the intake passage 47 for high speed. In the first engine speed area, the opening/closing control valve 51 is closed and the valve system is set at the first condition for

low speed, and in the second engine speed area, the valve system is set at the second condition for high speed. In the third engine speed area, the opening/closing control valve 51 is opened and the valve system is set at the first condition for low speed, and in the fourth engine speed area, the valve system is set at the second condition for high speed.

Japanese Patent No. 4143410: This patent purports to disclose to control the output torque of an internal combustion engine so effectively in keeping a throttle valve intact in a state of being opened by constituting a valve opening angle at the time of partial load driving so as to make it smaller than the said opening angle.

At the time of partial load driving of an internal combustion engine E, a worm gear shaft 31 is rotated by a servomotor 30, and a camshaft support member 22 rocks via a worm gear 311 and a sector gear 191. Accordingly, two cams 29a, 29b come into contact with each tip side of slipper arms 16a, 16b of rocker arms 13a, 13b. In this state, each rocking angle of these rocker arms 13a, 13b decreases and each valve lift of an inlet valve 7a and an exhaust valve 7b become lessened. Thus, a variable range of valve timing is increased, through which a yet more improvement in volumetric efficiency is thus promoted.

Japanese Patent No. 5086913: This patent purports to disclose to provide an intake system for an engine with a supercharger provided with a variable valve timing mechanism and a variable intake mechanism, for effectively preventing knocking at the time of quick acceleration from a low rotational and low load region, and for improving acceleration responsiveness.

An opening valve overlap of an intake device A of an engine E with a supercharger, provided with a hydraulic variable valve timing mechanism 21, a P port 4 for constantly feeding air to a combustion chamber, and with an S port 5 provided with an

opening and closing valve 39, is made small in a low load and low rotation region, and is made large in the other regions, while the opening and closing valve 39 is closed in a low rotation region, and is opened in the other regions. A control means (control unit 23) is also provided, by which the opening and closing valve 39 is forcibly opened for a fixed period at the time of quick acceleration from a condition where the opening valve overlap is small.

German Patent No. 4209684: This patent purports to disclose the cylinder has the inlet manifold (12) and the exhaust manifold (19) meeting in a gas transfer section (4) bounded by the inlet and outlet valves set at angles. Swirl effects at the manifold edges, generated by tight contours and by the valve guides, are reduced by gas compensation ducts (10, 13, 16, 17) linked to a variable gas control.

Gas is either taken from the swirl areas, exhaust gases recycled, air pumped into the swirl areas or a combination of the options are applied to optimize the gas flow through the manifolds. The air pressure is generated by an air pump (35) and the suction by a venturi pump (41). Two multi-way control valves (31, 33) and a processor control (40) regulate the compensation.

The advantage is improved gas flow, improved exhaust emission control.

Japanese Patent No. 9125994: This patent purports to disclose to increase an exhaust gas volume in quick response to acceleration, and rapidly raise boost pressure for improving an acceleration characteristic by increasing an intake fresh air volume on the operation of an engine for keeping a valve overlap at zero or the reduction thereof, and quickening acceleration response, upon the detection of the acceleration.

A total gas volume in cylinders is increased as an operation mode for keeping a large overlap between an exhaust

valve and an intake valve during the low-and intermediate-load operation modes of an internal combustion engine. When the engine is accelerated in this condition, a phase change means is operated for immediately keeping the valve overlap at zero or the reduction thereof to increase the volume of the intake fresh air and raising acceleration response. As a result, the valve overlap is reduced immediately after the acceleration, and the volume of the fresh air in cylinders can be suddenly increased. Also, the increase of a gas volume can cause not only an instantaneous increase in output, but also an instantaneous increase in exhaust gas volume sent to a turbocharger, thereby eliminating a turbo lag.

Japanese Patent No. 9303165: This patent purports to disclose to perform excellent combustion of an internal combustion engine by a method wherein when fuel is adhered on a deposit accumulated on the intake system of an engine, the valve characteristics of a VVT(Variable Valve Timing mechanism) is varied according to a deposit amount, in an internal combustion engine having the VVT.

An ECU 80 detects the operation state of an engine 1 by a throttle sensor 72 and an intake air sensor 7, the concentration of oxygen in exhaust gas is detected by an oxygen sensor 75. Based on the detecting value, an air-fuel ratio during acceleration operation of air-fuel mixture fed in the engine 1 is computed at a given timing, and an estimated adhesion amount of deposit is learned. The ECU 80 varies the target displacement angle of a variable valve timing mechanism 25 to the angle of lag side and an angle of lead speed is delayed. This constitution prevents the occurrence of knocking due to adhesion of the deposit.

Japanese Patent No. 9324672: This patent purports to disclose to prevent torque fluctuation shocks and misfires by

switching fuel injection timing in synchronism with switching of a variable intake valve which produces a vortex inside a combustion chamber, in a device wherein the operating mode is switched between the lean-burn operating mode and the stoichiometric operating mode when the variable intake valve is closed.

An intake manifold 3 is divided into two passages by a partition wall, and one of the passages is closed by a variable intake valve 20 to produce a tumbling flow inside a combustion chamber. Combustion efficiency is thereby enhanced and lean-burn operation is made possible. The closure of the variable intake valve 20 is effected if such requirements that engine speed be not more than a predetermined value, that engine load be not more than a predetermined value, and that throttle opening be not more than a predetermined value are met. If injection timing differs between before and after the variable intake valve 20 is switched between open and closed positions, fuel injection timing is gradually varied from the injection timing before the switching to that after the switching, thereby preventing torque fluctuation shocks.

Japanese Patent No. 10037772: This patent purports to disclose to variably control the opening/closing timing of an intake valve suitably by variably controlling the opening/closing timing of the intake valve so as to reduce the operating angle ratio between an up-operating angle from the lift start of the intake valve to a maximum lift and the down-operating angle from the maximum lift to a lift final point, smaller than a high boost pressure time at the time of low boost pressure.

In a device in which the opening/closing timing of an intake valve 5 is variably controlled by a variable valve system 11, a variable valve system 11 is formed in such a constitution

that the eccentric position of an annular disk 29 is variable controlled through a first eccentric cam 41, a cam shaft 22 is rotated un- uniformly, a phase difference between the variable valve system 11 and a driving shaft 21 is generated. At this time, an operating angle ratio between the up-operating angle from a lift start in a valve lift curve and a maximum lift and the down-operating angle from the maximum lift to a lift final point so as to reduce at the time of low boost pressure and increase at the time of high boost pressure. The maximum lift is delayed at the time of high boost pressure, and approaches a bottom dead point, and thereby, it is possible to improve a filling efficiency by new air taking-in effect, and it is also possible to improve a torque.

Japanese Patent No. 10220256: This patent purports to disclose to provide compatibility to power performance and fuel consumption by increasing the compression ratio of an internal combustion engine provided with a turbo supercharger without deteriorating low-speed torque and responsiveness.

A variable valve mechanism for changing the operating angle is used for an intake valve 5, and the closing timing is variably controlled with the closing timing is held constant. The relative large A/R (the ratio of the scroll narrowest sectional area A and the distance R from the shaft center) is provided to a turbo supercharger 9 so that exhaust pressure on a turbine inlet may be equal to or not more than supercharged pressure of a compressor outlet in all load ranges before a waste gate valve is opened. Since the intake valve closing timing is controlled according to the engine speed before a waste gate valve 11 is opened and since it is controlled in the low-speed range so as to approach the bottom dead center, the intake air back flow in the initial stage of the compression

stroke is prevented, and low-speed torque and responsiveness are improved even in a supercharger having the large A/R.

Japanese Patent No. 10288055: This patent purports to disclose to provide an intake air amount control device of internal combustion engine capable of maintaining a stable engine combusting conditions by suppressing the occurrence of a spitting phenomenon at low speed and load.

An air intake pipe 11 is connected to an air intake port 9 provided in each cylinder of an engine 1 through an air intake manifold 11a. Also a bypass path 22 for connecting the upstream of a throttle valve 19 to the downstream of it is provided in the air intake pipe 11. An idle control valve 23 for adjusting an intake air amount at idling is installed in the bypass path 22. An air intake control valve 24 is installed in the air intake manifold 11a. In addition, in idling operation, an ECU 51 opens the air intake control valve 24 controllably after a valve overlap time has been passed, and closes it controllably when a specified time has been passed after the air intake valve 13 has been closed.

Japanese Patent No. 10288056: This patent purports to disclose to increase engine output while reducing turbo lag.

A time at which an air intake valve 5 opens is changed from during an air intake process to an exhaust process as an engine speed is increased. Because a kinetic energy can be given more to the air intake than to an engine at the suction of air intake, the exhaust gas energy can be increased. As a result, because a force to drive a turbine 9 becomes large, an engine output can be increased while reducing a turbo lag.

German Patent No. 19847851: This patent purports to disclose an energy saving valve control for an IC engine has the throttle valve (17) operated with the throttle pedal setting for medium to large torque. For medium to low torque the throttle

valve is set fully open and the timing of the inlet and exhaust valves is adjusted to provide the optimum air intake, to match the engine requirement and the fuel injection rate. The inlet and exhaust valves are operated by a servo control, without direct mechanical linkage to the engine. The engine is able to operate with an enhanced efficiency by not having to work against low pressure in the inlet manifold, at low speeds.

Japanese Patent No. 11270368: This patent purports to disclose to restrain fluctuation of generating torque in accordance with an accelerator manipulated variable in an internal combustion engine furnished with a variable valve timing control mechanism and an electronic throttle system.

A torque fluctuated amount by a variable valve timing control mechanism (VVT) 10 is detected in accordance with oil temperature THO, etc., and throttle opening TA in an electronic throttle system to adjust intake air quantity QA to an internal combustion engine 1 by a DC motor 13 independently from accelerator opening AP as an accelerator manipulated variable in accordance with this detected torque fluctuated amount is corrected. Consequently, when the oil temperature THO is low and responsiveness of the VVT 10 is short, shortage of generating torque impaired due to responsiveness of the VVT 10 is corrected by opening of a throttle valve 14 and controlled. Consequently, fluctuation of generating torque in accordance with the accelerator manipulated variable is restrained, and it is possible to improve drivability.

PCT Publication No. 9947800: This patent purports to disclose the volume of intake air is controlled for each cylinder to make the torque generated by each cylinder controllable, ultra-lean-burn operation is possible, exhaust gas is cleaned, and the power output of the engine is increased. Specifically, each branch pipe or each air intake port is

provided with an air volume control valve whose opening/closing is controlled according to the degree to which the accelerator is operated. This air volume control valve may be either a throttle valve provided for each branch pipe or a variable intake valve for opening/closing the air intake port.

TIMING OF DISCLOSURE / FEE INFORMATION


This Information Disclosure Statement is being filed, to the best of the undersigned's knowledge, either (1) before the mailing of a first Office action on the merits, or (2) before the mailing of a first Office action after the filing of a request for continued examination under 37 C.F.R. § 1.114. Therefore, in accordance with 37 C.F.R. § 1.97(b), no fee or statement under 37 C.F.R. § 1.97(e) is required.

Please charge any cost incurred in the filing of this Amendment, along with any other costs, to Deposit Account No. 06-1510. If there are insufficient funds in this account, please charge the fees to Deposit Account No. 06-1505. A duplicate copy of this sheet is enclosed.

Please contact the undersigned with any questions or comments regarding this Information Disclosure Statement.

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450, on May 19, 2004.


Lauren Barberena

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FORM PTO-1449 INFORMATION DISCLOSURE CITATION IN AN APPLICATION		DOCKET NUMBER FGT 3G7DIV4		APPLICATION NUMBER 10/765,596		
		APPLICANT(S) John D. Russell et al				
		FILING DATE January 27, 2004		GROUP ART UNIT		
U.S. PATENT DOCUMENTS						
EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FIL. DATE IF APPROP.
	3,548,798	12-22-70	Fleischer			
	4,084,568	4-18-78	Sato et al			
	4,494,506	1-22-85	Hayama et al			
	4,592,315	6-3-86	Kobayashi et al			
	4,651,684	3-24-87	Masuda et al			
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	4,856,465	8-15-89	Denz et al			
	5,019,989	5-28-91	Ueda et al			
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	5,115,782	5-26-92	Klinke et al			
FOREIGN PATENT DOCUMENTS						
	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB CLASS	TRANSLATION YES NO
	59194058	11-2-84	JP			Abstract only
	60240828	11-29-85	JP			Abstract only
	62101825	5-12-87	JP			Abstract only
	1100316	4-18-89	JP			Abstract only
	3916605	11-30-89	DE			Abstract only
OTHER DOCUMENTS						
EXAMINER			DATE CONSIDERED			

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	0376703	7-4-90	EP			
	2176115	7-4-90	JP			Abstract only
	3009021	1-16-91	JP			Abstract only
	0440314	8-7-91	EP			
	4143410	5-18-92	JP			Abstract only
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	5086913	4-16-93	JP			Abstract only
	0560476	9-15-93	EP			
	4209684	9-30-93	DE			Abstract only
	4321413	1-5-95	DE			Abstract only
	9125994	5-13-97	JP			Abstract only
	9256880	9-30-97	JP			Abstract only
	9303165	11-25-97	JP			Abstract only
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	5,765,527	6-16-98	Lehner et al			
	5,791,306	8-11-98	Williamson			
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	5,950,603	9-14-99	Cook et al			
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	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB CLASS	TRANSLATION YES NO
	9324672	12-16-97	JP			Abstract only
	2315571	2-4-98	GB			
	10037772	2-10-98	JP			Abstract only
	0831218	3-25-98	EP			
	10220256	8-18-98	JP			Abstract only
	10288055	10-27-98	JP			Abstract only
	10288056	10-27-98	JP			Abstract only
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	11270368	5-10-99	JP			Abstract only
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		FILING DATE January 27, 2004		GROUP ART UNIT		
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	1020625	7-19-00	EP			
	1065349	1-3-01	EP			
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